

Antelope & PHP

(or getting your real
time data on the web)

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Lofty goals

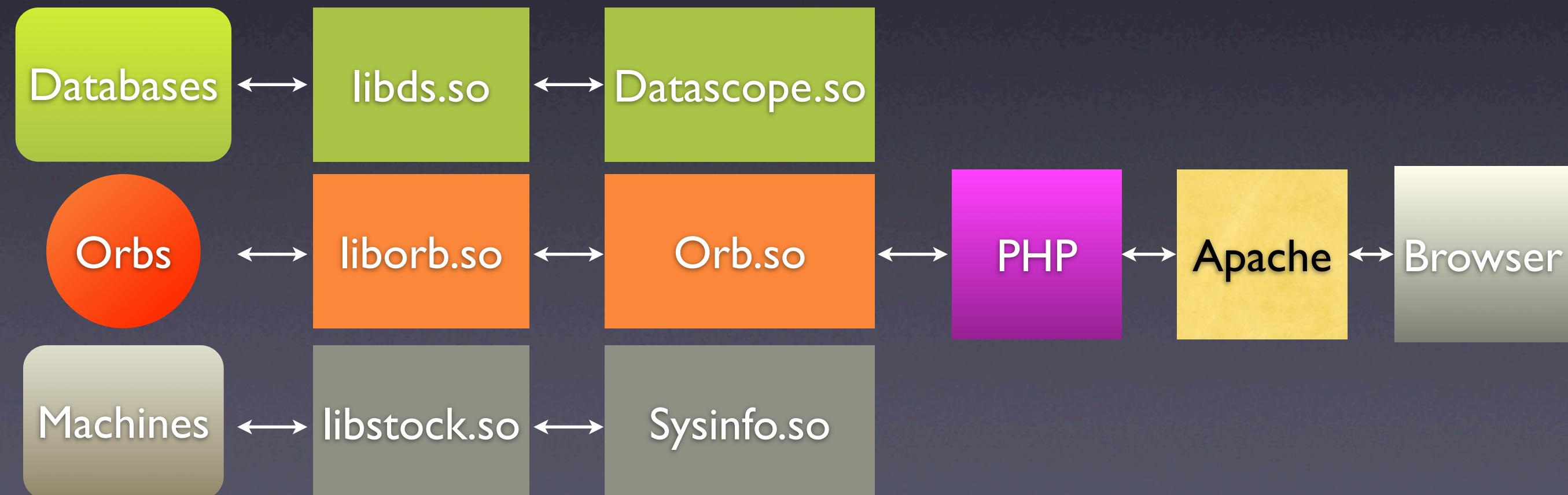
- “Quinlan-esque” interface
- Plug’n’play capability
- Simple application for the user
 - no knowledge of HTML required

Interface

- PHP extensions: Datascope.so, Orb.so, sysinfo.so
- Make small changes to PHP init script
- All (kind of!) software in contrib

The Antelope PHP Interface

- ⦿ Faithful map of C API (like Datascope Perl)
- ⦿ Supporting scripting elements in [\\$ANTELOPE/data/www](#), [\\$ANTELOPE/data/php](#)



Datascopeso

- ⦿ standard database operations -- ds_dbopen, dbsubset, dbjoin etc.
 - ⦿ note 'ds_' prefix on dbopen and dbclose
- ⦿ waveforms
- ⦿ error handling
- ⦿ parameter files
- ⦿ special functions--path handling etc
- ⦿ time conversion
- ⦿ foreign keys mappings

Orb.so

- ⦿ orbopen / close/ ping
- ⦿ orbselect / reject
- ⦿ pforbstat
- ⦿ (orbread / unstuffPkt...coming)

sysinfo.so

- my_ip, hostname, hardware, os, username...
- process info--PIDs etc
- Memory use, load averages etc

Setting up for Antelope

PHP: compilation

- ⦿ Install PHP to work with your web server
- ⦿ Get `$ANTELOPE/src/contrib/data/php`
 - ⦿ Antelope contributed-code repository
 - ⦿ BRTT FAQ explains checkout
- ⦿ `setenv PHP_INC`
 - ⦿ not necessary for `/usr/local/include/php` or `/usr/include/php`
- ⦿ `make install`

PHP must 'see' the extension

- ⦿ Datascope.so, Orb.so & sysinfo.so extensions must be 'visible' to PHP
- ⦿ **Extensions caveat!** Only one directory definition allowed, therefore...
- ⦿ Two options for extensions:
 - ⦿ **Single extension:** Modify php.ini extensions dir to Antelope:
; Directory in which the loadable extensions (modules) reside.
extension_dir = "/opt/antelope/4.8/data/php"
 - ⦿ **Multiple extensions:** Sym-link to real home of Datascope.so
`/usr/lib/php/extensions`
Datascope.so -> /opt/antelope/4.8/data/php/Datascope.so
Orb.so -> /opt/antelope/4.8/data/php/Orb.so

include_dir

- May need to set include_dir directive in php.ini

- \$ANTELOPE/data/www

css/

images/

js/

xslt/

How does it work?

- Dynamic load of Datascope and/or Orb shared object libraries:

```
<?php
if( !extension_loaded( 'Datascope' ) )
{
    dl( 'Datascope.so' ) or die( 'Failed' ) ;
}
?>
```

It works, so now what?

- ⦿ man pages: datascope_php, orb_php, sysinfo_php

```
$mydb = ds_dbopen( "/path/to/database", "r" );
```

```
$active_stas = dbprocess( $mydb, "dbopen site",
```

```
    "dbjoin snetsta", "dbjoin deployment",
```

```
    "dbsubset offdate == NULL",
```

```
    "dbsubset time <= time()",
```

```
    "dbsort snet sta" );
```


Anatomy of a web application

PF

Config and settings

CSS

Appearance

JS

Client side function

PHP

Database & processing

The screenshot displays the Earthscope ANF Website interface for Station M06C. The browser address bar shows the URL <http://anf.ucsd.edu/stations/detail.php?sta=M06C>. The website features a navigation menu on the left with links for ANF (home, about, faq, goals, publications, partners, timelines, dev, contact us), USArray (stations, online tools, TAWG discussion, flexible arrays, earthquakes, special events, links, admin), and PBO (about, stations, online tools, admin). The main content area includes the Earthscope logo and the title "Array Network Facility Earthscope ANF Website". Below this, the breadcrumb trail reads "Home » USArray Stations » Station M06C". The "Site Information for Station M06C" section contains a table with the following data:

Network	TA - USArray TA
Station ID	M06C
Station Name	Likely Place Golf, Likely, CA, USA
Latitude	41.21
Longitude	-120.48
Elevation	1.43 km
USArray Ondate	2005-06-28
Equipment Installation Date	2005-06-28
Equipment Removal Date	Not available
ANF Certification Date	2005-06-30
ANF Decertification Date	Not available
Communications Provider	Verizon

To the right of the table is a "Station location map" showing the station's location within the USArray network. Below the table, the "Datalogger Statistics" section provides the following information:

Model	Quanterra 330 Linear Phase Compo
ID tag	1123
Data latency	97 seconds
Most recent packet In Orb	1149888618.525 (160) 2006-06-09 21:30:18.525 UTC Friday
Oldest packet In Orb	1149856688.525 (160) 2006-06-09 12:38:08.525 UTC Friday

The "Sensor Statistics" section shows:

Model	Streckeisen STS-2
Serial Number	120438

At the bottom right, there is a "Station Photo" showing the physical station equipment in a field. The NSF logo is visible in the bottom left corner of the website.

Config and settings

```
server_settings &Arr{
    use_dbcentral          0
    img_dbpath             /export/www/html/db/rt_images_roadnet
    movies_database_present yes
}

rtapps_subdir    /rtapps

header_settings &Arr{
    project_title      Realtime Imagebank
    css_file           &rtapps_subdir/css/rtimbank_css.php
    refresh_rate_sec   300
    records_per_page   20
}

image_settings &Arr{
    page_bkgrd         &rtapps_subdir/images/roadnet_page_bkgrd.gif
    header             &rtapps_subdir/images/roadnet_logo.jpg
    header_bkgrd       &rtapps_subdir/images/roadnet_logo_bkgrd.gif
    header_alt         ROADNet Header Logo
    footer_bkgrd       &rtapps_subdir/images/roadnet_bottom_line.gif
    footer_color       0F1C23
}
```


earthscope

Array Network Facility

Earthscope ANF Website

ANF

- [home](#)
- [about](#)
- [faq](#)
- [goals](#)
- [publications](#)
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USArray

- [stations](#)
- [online tools](#)
- [TAWG discussion](#)
- [flexible arrays](#)
- [earthquakes](#)
- [special events](#)
- [links](#)
- [admin](#)

PBO

- [about](#)
- [stations](#)
- [online tools](#)
- [admin](#)

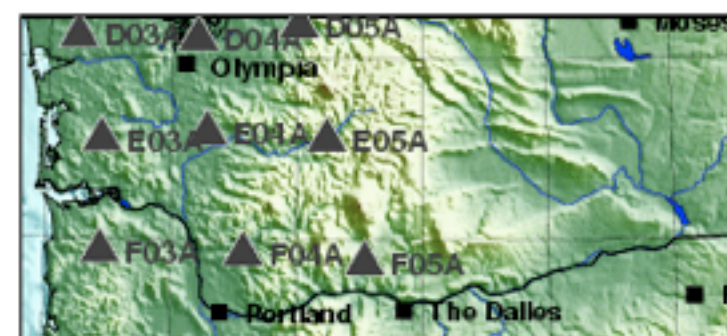
[Home](#) » [USArray Stations](#) » **Station G05A**

Site Information for Station G05A

Network	TA – USArray TA
Station ID	G05A
Station Name	Wamie, OR, USA
Latitude	45.24
Longitude	-121.32
Elevation	0.59 km
USArray Ondate	2005-12-14
Equipment Installation Date	2005-11-03
Equipment Removal Date	Not available

Done

Station location map



JS

Client side function

- ⦿ Allows content to be changed without new requests to Apache/PHP
- ⦿ Large range in the application of this...



- ⦿ “Meat” of the application
- ⦿ All connection, manipulation and transformation processes

Real world examples

- ◎ [Datascopeso](#) Connect to demo dbmaster and output tables...
- ◎ [Orb.so](#) Connect and display orb stats...

But I don't know PHP!

- ◎ [\\$ANTELOPE/data/php/www](#)
- ◎ Pre-built applications; each has style sheet file, php file (that calls the application), and if needed a javascript file
- ◎ Copy to your Apache web dir, fill out parameter file, done...
- ◎ OR.....

Can't that be automated?

- dbwebproject
- Uses templates in parameter-file
 - e.g. 'rtimbank', 'stations', 'LCI_website'
- Takes PHP, Javascript, PF, etc. parts from \$ANTELOPE/data
- Installs everything in /path/to/htdocs

Antelope and PHP5

- ⦿ Works....
- ⦿possible clash with `libxml2`
- ⦿ Symptom: SIGSEGV in `ds_dbopen`
- ⦿ Cause: offending symbol `'attribute'` in `libxml2`
- ⦿ Workaround: compile `libxml2` without deprecated SAXI interface
 - ⦿ `./configure --without-legacy`
- ⦿ Warning: Unknown downstream consequences!! (use private `libxml2` if worried)
- ⦿ Solution: Antelope 4.9...

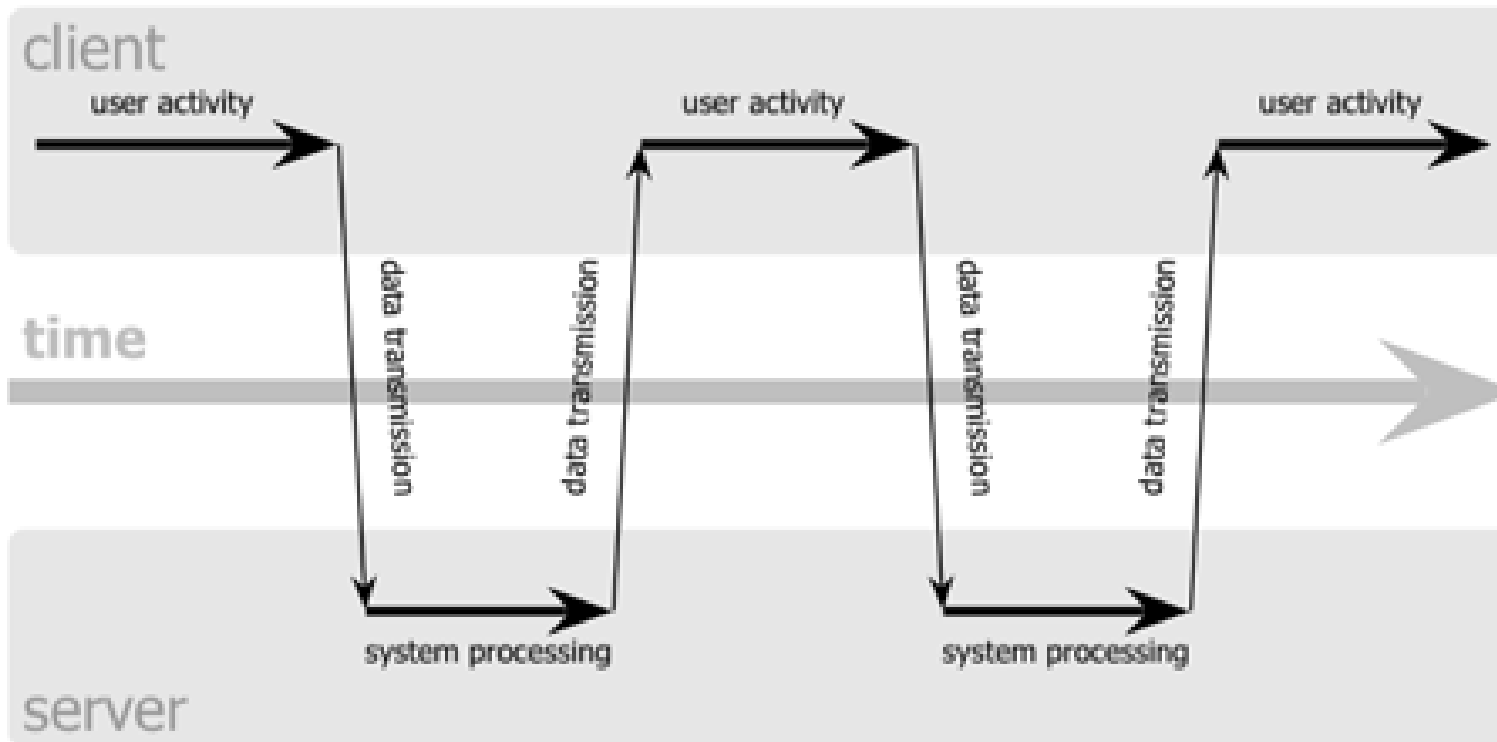
Antelope and PHP5

- **Payoff:** Object-oriented programming
- Necessary for full orb interface (coming)

Comments/questions?

- Post Dan Q's talk...
 - PHP's PCRE closely resemble Perl's regex
 - <http://www.php.net/pcre>
- Give it a try.....?

classic web application model (synchronous)



Ajax web application model (asynchronous)

